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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,125	12/02/2003	Rui M. Bastos	NVDA P000600	3536
26291	7590	10/20/2005		
MOSER, PATTERSON & SHERIDAN L.L.P. 595 SHREWSBURY AVE, STE 100 FIRST FLOOR SHREWSBURY, NJ 07702			EXAMINER LUU, MATTHEW	
			ART UNIT	PAPER NUMBER
			3663	

DATE MAILED: 10/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/726,125	<b>Applicant(s)</b> BASTOS ET AL	
	<b>Examiner</b> LUU MATTHEW	<b>Art Unit</b> 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1, 5-10 and 21-33 is/are pending in the application.
- 4a) Of the above claim(s) 22-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 5-10 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election By Original Presentation***

1. Newly submitted claims 22-33 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The new independent claim 22 is drawn to a method of determining sub-pixel sample positions for a pixel position on a backward compatible basis. The new independent claim 29 is drawn to a method anti-aliasing the edge of a primitive consistently between frames where the viewpoint has not changed.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 22-33 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

### ***Claim Objections***

2. Claim 1 is objected to because of the following informalities:

Regarding claim 1, line 6, after "pixel position" replaces "[[ . ]]" with " , ".

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. Claim 21 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding the new claim 21, the new limitation "wherein the number of pixel offset values stored is dependent on the resolution of the image to be displayed" was not disclosed in the specification as originally filed.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson et al (US 2002/0140706).

Regarding claims 1, Peterson discloses (Figs. 2 and 6) a method of determining sub-pixel sample positions for a pixel position to reducing aliasing, comprising:

reading a first sub-pixel offset value and a second sub-pixel offset value (Fig. 6 shows the reducing the distance (offset value) between two samples) (Section 33, lines 5-10); and

computing a jittered sub-pixel sample position using the first sub-pixel offset value, the second offset value, and the pixel position (Section 44, lines 1-11).

The only difference between the disclosure of Peterson and the claimed invention is that the claim 1 requires the offset values are programmable.

However, since Peterson also mentions that "In effect, when a pattern is applied to a pixel, different pseudo-random or random offsets, varying independently in x and y, are added to the coordinates of each sample position, before the samples are calculated" (Section 44, lines 7-11), it would have been obvious to a person of ordinary skill in the art to recognize that these offsets values are "programmed" to be selected randomly.

Regarding to the sub-pixel offset value is partially based on at least a portion of the pixel position, since Peterson also mentions "sampling positions are altered at the sub-pixel level" (Section 44, line 7), it is obvious to the person of ordinary skill in the art to recognize that the offset value is partially based on at least a portion of the pixel position which is "a sub-pixel position".

Peterson further discloses (Fig. 5a), the sub-pixel sampling positions of pixel (704a) are located at (3, 1) and (0, 2) (Section 32, lines 5-7). Therefore, based on this teaching, one skill in the art would recognize that the sub-pixel offset value (sampling

positions) is partially based on at least a portion of the pixel position (the location at (3, 1) and (0, 2) are the portions of the pixel (704a)).

***Claim Rejections - 35 USC § 103***

6. Claims 5-10 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson in view of McNamara et al (US 2003/0122829).

Regarding claim 5, Peterson fails to explicitly teach computing a depth value of a fragment for each jittered sub-pixel sample position.

However, McNamara teaches computing a depth value for a fragment for each sub-pixel sample position (Section 3). Therefore, it would have been obvious to the person of ordinary skill in the art to use the method of computing a depth value for a fragment for each sub-pixel sample position into the method of determining sub-pixel sample positions for a pixel position of Peterson since this is conventional in the art. Furthermore, it is well known in the art that a graphics accelerator can convert an object into primitives and then into fragments.

Regarding claim 6, McNamara teaches (Figs.10, 11 and 25-28) the step of determining sub-pixel sample coverage for a fragment associated with the pixel position.

Regarding claim 7, McNamara teaches computing a color value of a fragment (Section 3).

Regarding claim 8, McNamara teaches computing a color value of a fragment at a sub-pixel position within a pixel boundary (Section 3).

Regarding claim 9, McNamara teaches computing a color value of a fragment at a pixel position within a pixel boundary (Section 3). Furthermore, it is well known in the art that a pixel can be divided into smaller sub-pixels.

Regarding claim 10, McNamara teaches computing a color value of a fragment for each sample position (Section 3). The jittered sub-pixel is disclosed by Peterson as set forth above with regarding to the rejection of claim 1.

Regarding claim 21, it would have obvious to the person of ordinary skill in the art to recognize that, since the number of pixel offset values is dependent on the number of pixels, and the resolution is the number of pixels, therefore, the number of pixel offset values is dependent of the resolution of the image to be displayed.

### ***Response to Arguments***

7. Applicant's arguments filed September 23, 2005 have been fully considered but they are not persuasive.

The Applicant argues in his remarks by asserting that Peterson does not discloses "the sub-pixel offset value is partially based on at least a portion of the pixel position". The examiner respectfully disagrees.

Peterson clearly discloses (Fig. 5a), the sub-pixel sampling positions of pixel (704a) are located at (3, 1) and (0, 2) (Section 32, lines 5-7). Therefore, based on this teaching, one skill in the art would recognize that the sub-pixel offset value (sampling positions) is partially based on at least a portion of the pixel position (the location at (3, 1) and (0, 2) are the portions of the pixel (704a)).

***Conclusion***

**8. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

**9.** Any inquiry concerning this communication or earlier communications from the examiner should be directed to **LUU MATTHEW** whose telephone number is (571) 272-7663. The examiner can normally be reached on Flexible Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **JACK KEITH** can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. Luu

A handwritten signature in black ink, appearing to read 'Matthew Luu', with a stylized flourish at the end.

**MATTHEW LUU**  
**PRIMARY EXAMINER**